C-FAR Members Address Priorities at Semi-Annual Meeting

The Illinois Council on Food and Agricultural Research (C-FAR) held its 2005 Semi-Annual Meeting in Springfield on August 23. Highlights of the meeting included reports from board officers and committee chairs, presentations by guest researchers, and meetings of C-FAR’s five working groups. The working groups met to identify priority research to support Illinois’ food, agricultural, and related systems. About 110 members representing a broad range of sectors within Illinois’ food and agricultural community attended the meeting.

A recurring theme of the meeting was the importance of the C-FAR appropriation. “Food and agriculture is the number one industry in Illinois,” said Alan Puzey, C-FAR chairman. “We look forward to working hand-in-hand with the State of Illinois in bringing a viable food and agricultural research program to fruition.”

For his annual address, Executive Administrator Kraig Wagenecht discussed “time-outs” being taken to examine how well the organization is serving its membership. “The purpose of these time-outs, just as in sports, is to allow us to reflect, evaluate, and refocus, if necessary,” said Wagenecht. Survey results from
GREETINGS

STRIKING A BALANCE

A vibrant research portfolio strikes a balance among different types of research. Food and agricultural systems are not alone in striving for such a balance because other sectors such as human disease, electronics, and the auto industry also seek to invest in different approaches to their research efforts.

C-FAR’s research portfolio has largely comprised two general types of research—basic and applied. These research types are widely recognized, and they are the main tenets of most viable research programs. Although the definitions of these terms are debated from time to time, let me share general characteristics of each to enable a better understanding by C-FAR members.

Basic research is sometimes referred to as bench science or fundamental research. It is not intended to have immediate end-user applicability, but it is primarily utilized to test various hypotheses within a “test tube” environment, and it is generally based on a “what-if” scenario. Its primary objective is the advancement of the pool of knowledge. Although this type of research is generally conducted without a practical application in mind, it often provides the critical foundation for applied research. Basic research initiatives often ask questions related to mechanism(s) of action, and they might have potential for assisting an industry in solving old problems or advancing new opportunities.

Applied research is conducted to address specific, practical questions in solving an existing problem or seizing a practical opportunity for the advancement of an industry. Its focus is addressing real-life situations.

In the Illinois food and agricultural sector, ideas for basic and applied research originate from both researchers and stakeholders. C-FAR adds a unique and important dimension by providing the mechanism for industry stakeholders and researchers to work together in determining our state’s food and agricultural research needs. As I’ve shared before, this is part of the Illinois advantage, as we know of no other state which can boast such an organization which promotes and supports this unique working relationship.

C-FAR’s research portfolio also includes a variation of the two types of research I have explained earlier; research many would term discovery. This type of research is less fundamental than basic, and it has a greater linkage to addressing practical needs or opportunities. Discovery research most often originates from researchers, who, with their research experiences and expertise, can envision a sound and important applied research initiative unfolding after “discovery” is made.

Our research portfolio has been highly vibrant due in large part to the original legislation that set forth our protocols. The C-FAR portfolio includes research covering the entire spectrum of basic, applied, and discovery. It provides for idea generation across all of our partners, resulting in the best possible environment for the development of a balanced portfolio. May we continue to strike a balance for the benefit of our state and its citizens.

Kraig A. Wagenecht
Executive Administrator
annual and semi-annual membership meetings and a more comprehensive survey on the organization in general were shared with members. “Like the membership meeting evaluation results, your responses to our association survey were very positive. At the same time, there were valuable suggestions and a sharing of concerns,” said Wagenecht. “A survey of this type allows us to weigh and appropriately respond to positive comments and constructive criticism. We are doing both.”

Meeting attendees selected from three guest researchers to hear presentations on C-FAR–funded research. Dr. Jason Bond, an assistant professor of plant, soil, and agricultural systems at Southern Illinois University Carbondale, discussed his research on managing emerging soybean pathogens in Illinois. Dr. Sharon Donovan, a professor of food science and human nutrition at the University of Illinois at Urbana-Champaign, presented her work on soy in the diet of infants and children. Ms. Darlene Knipe, a University of Illinois Extension educator, described efforts underway to assist Illinois livestock producers in gaining access to new markets.

The next meetings of the C-FAR membership include the All-Working Group Meeting in January 2006 and the Annual-Meeting to be held on February 28, 2006.
Priority Research Funded through FY06 External Program

The C-FAR research portfolio comprises three programs: the External Competitive Grants Program, University Internal Programs, and the Strategic Research Initiative Program. Research funded through each program is guided by research focus areas established by C-FAR’s five working groups.

The External Competitive Grants Program, as stipulated in the C-FAR appropriation’s enabling legislation, is funded at a minimum of 15% of the total appropriation. C-FAR’s working group members are actively engaged in all aspects of the program, from identifying the food, agriculture, and related sectors’ research needs to evaluating preproposals submitted by researchers to selecting the highest-priority research initiatives to fund. “This program is a prime example of how C-FAR facilitates the engagement of stakeholders to ensure the State of Illinois’ investment in publicly-funded research delivers maximum benefit for Illinois,” said Alan Puzey, C-FAR chairman.

The following priority research initiatives are being funded through the FY06 External Competitive Grants Program.

DEVELOPMENT AND EVALUATION OF A VALUE-ADDED FEEDSTUFF USING DISTILLER’S GRAINS
Principal investigator: Paul Walker, Illinois State University
Project length: 1-year
Description: Corn grown in Illinois is used to produce 40% of the ethanol consumed in the U.S. As ethanol production increases, production of distiller’s grains could outstrip demand. This research uses extrusion technology to combine wet distiller’s grains with either whole soybeans or soybean meal to develop a value-added feed for swine and cattle. It includes digestibility trials and feeding trials with both swine and cattle.

USE OF PLASMA FOR DESTRUCTION OF MICROBIAL HAZARDS IN FOOD
Principal investigator: Shirshak Dhali, Southern Illinois University Carbondale
Project length: 2-year
Description: Destruction of biological hazards in food is necessary to ensure safe and high-quality food for consumers. Electron beams, gamma rays, and x-rays are effective means of destroying biological hazards, however, these methods are capital intensive, have high operating costs, and pose safety hazards.

The objective of the research is to develop a novel technology based on ambient plasma to destroy biohazards in food. The research approach consists of controlled sample preparation, followed by plasma exposure and analysis of exposed samples for bacterial load and spoilage.

INTEGRATED MANAGEMENT OF SUMMER DISEASES OF APPLES
Principal investigator: Mohammad Babadoost, University of Illinois at Urbana-Champaign
Project length: 3-year
Description: Apple production ranks among the most pesticide-intensive crops in Illinois. Excessive pesticide use challenges the economic survival of Illinois’ commercial apple growers, with approximately 6,000 acres of orchards, and it can negatively impact the environment.

This research will evaluate the effectiveness of two weather-based disease-warning systems, an organic fungicide and a reduced-risk fungicide, on controlling summer apple diseases. It also will compare economics of the new integrated pest management strategies with conventional practices.

ENHANCING THE NUTRITIONAL VALUE OF MILK AND MILK PRODUCTS BY BOOSTING THEIR OMEGA-3 FATTY ACIDS CONTENT
Principal investigator: Amer Adel AbuGhazaleh, Southern Illinois University Carbondale
Project length: 3-year
Description: Omega-3 fatty acids have been shown to be essential for promotion and maintenance of good health, especially for children; pregnant and lactating women; and individuals with coronary heart disease, diabetes, mental illness, or immune response disorders. The primary objective of this project is to establish procedures for the on-farm production of omega-3 enriched milk and milk products. The production of omega-3 enriched milk, cheese, and ice cream will be accomplished through supplementing grazing cows with dietary algae, fish oil, and linseed oil. Consumer acceptability of milk, cheese, and ice cream enriched with omega-3 will also be evaluated.

CONSUMER ATTITUDES TOWARDS ISSUES OF FOOD SAFETY CONCERN
Principal investigator: Mary Susan Brewer, University of Illinois at Urbana-Champaign
Project length: 1-year
Description: Food safety is a continuing concern of consumers and a focal point of the food industry and regulatory agencies. This project will survey the food safety issues with which Illinois consumers are concerned. Understanding the factors (pesticides, foodborne illness, etc.) driving concerns will allow for development of food safety education programs to decrease actual risks and to reduce concern over more minor risks.
Strategic Research Initiatives Update

The Strategic Research Initiative (SRI) Program was established as a unique approach to addressing major issues of concern and to seize new opportunities for Illinois. The stakeholder-driven, multidisciplinary, and multi-institutional research program has proven successful in providing high-impact beneficial outcomes. Principal investigators of the currently funded SRIs, which began in July 2003, submitted progress reports for FY05 (July 2004 to June 2005) activities. Highlights of these reports follow.

ILLINOIS LIVESTOCK INTEGRATED FOCUS TEAMS (IL LIFT)

This four-year initiative addresses the economic and social challenges facing Illinois’ livestock industry. Principal investigator: Michael Hutjens, University of Illinois at Urbana-Champaign

LIVESTOCK FACILITY SITING IN ILLINOIS

As Illinois livestock facilities modernize and expand, they address a variety of issues, including requirements for manure handling, consumer acceptance, community reaction, and economic impact on their facilities. A survey of swine producers revealed information on how they approach compliance with environmental regulations. Educational opportunities were discovered in three areas: manure system measurements and recordkeeping, neighbor relations and awareness of odor nuisance potential, and storm water pollution prevention. The IL LIFT website (http://ilift.traill.uiuc.edu) includes information on 2006 environmental regulations, facility permitting, comparisons between IEPA, IDOA, and NRCS regulations, and worksheets for nutrient management planning.

USING ILLINOIS BY-PRODUCT FEED IN LIVESTOCK FEEDING

An interactive website has been developed to inform Illinois livestock producers about the use of dried and wet distiller’s grains in livestock diets. Information on distiller’s grains and their utilization in swine, dairy, and beef cattle diets has been added. Distiller’s grain production information from ethanol plants in or within a 100 mile radius of Illinois is also now available. To access the site go to http://ilift.traill.uiuc.edu/distillers/.

USING ILLINOIS FORAGES BASED ON PASTURE-BASED SYSTEM

Livestock producers have renewed interest in low-input forage-based feeding systems that utilize high-quality intensively managed pasture systems with residual forages as alternative winter feeds. For summer 2004, Becherer Sheep Farm ewe grazing day costs ranged from $0.06 to $0.99. Higher grazing costs were observed when excess forages are mechanically harvested. Daily cow grazing day costs ranged from $0.40 to $0.82 for perennial pastures at the Dudley Smith Farm. Higher grazing costs were associated with warm

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MICHAEL HUTJENS (LEFT), PROFESSOR OF ANIMAL SCIENCES AT THE UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN, PROVIDES LEADERSHIP FOR THE ILLINOIS LIVESTOCK INTEGRATED FOCUS TEAM SRI.
Strategic Research Initiatives Update

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season paddocks and a limited grazing season. Cow day grazing costs for Schuette Farms ranged from $0.26 to $0.88. Higher grazing costs were associated with harvesting excess forages and reduced grazing opportunities. The 2004–05 winter grazing costs were $0.81 per grazing day for cattle at the Dudley Smith Farm; this cost was increased due to wet weather and reduced grazing opportunities.

ANIMAL IDENTIFICATION FOR ENHANCED FOOD QUALITY AND MONITORING LIVESTOCK HEALTH

Animal identification is a national concern for producers, processors, and consumers to improve animal health, traceability of livestock products, and meat and milk quality, and to manage livestock using individual animal data. Researchers tested commercially available identification chips that provide temperature sensing information. They found that fever response in implants placed in peripheral subcutaneous locations such as the ear consistently show a depression rather than an increase in body temperature. Presentations on the Illinois Premises Registration System were given to inform livestock producers about this initial step in the U.S. Animal ID Plan.

BIOMASS ENERGY CROPS INVESTIGATED FOR POWER AND HEAT GENERATION IN ILLINOIS

This five-year research initiative aims to provide Illinois with the foundation and technology leadership for large-scale cultivation of biomass crops. Principal investigator: Stephen Long, University of Illinois at Urbana-Champaign

FIELD TRIALS

Small (0.25 acre) field trials were established to assess the productivity of Miscanthus and switchgrass over a variety of growing conditions. Urbana and Dixon Springs sites yielded 24 dry tons per acre in 2004. Yields were 10 tons more than projected, but this may have resulted from exceptional growing conditions. Despite the drought, these plots look similarly productive in 2005, with as yet no evidence of drought symptoms in contrast to the adjacent corn and soybean crops. Large plots (0.46 acre each) of Miscanthus, Miscanthus with hairy vetch as a cover crop, switchgrass, and a corn/soybean rotation have also been established.

MISCANTHUS BREEDING AND IMPROVEMENT

Research is being performed to provide genetic diversity and the basis for breeding higher yielding and better adapted Miscanthus. To create new germplasm, researchers are working to hybridize accessions of M. sinensis with stocks of M. sacchariflorus acquired from five different nurseries. Researchers are also generating and testing somoclonal variants of Miscanthis.
DEVELOPMENT OF GENETIC ENGINEERING TECHNIQUES

Techniques are being developed to introduce desired traits, such as disease and pest resistance, in Miscanthus. Researchers can now routinely initiate new cultures from immature Miscanthus inflourescences. These cultures can be maintained for months and still be capable of regenerating plants.

SOIL CARBON AND GAS EMISSIONS

Soil samples were collected from the Urbana site and analyzed for carbon and nitrogen contents to provide the important baseline needed to evaluate the long-term impact of biofuels. N$_2$O emission from soils under Miscanthus, switchgrass, and corn is being measured to compare global warming potential (GWP).

WATER RESOURCE IMPLICATIONS

Soil samples from Miscanthus, switchgrass, and soybean plots were analyzed for exactable nitrate and ammonium to estimate leachable nitrogen (N) pools. Miscanthus and switchgrass had lower inorganic N pools compared to soybean. This was expected and demonstrated that bioenergy crops immediately reduce soil inorganic N pools. PVC tubes for monitoring soil moisture were installed in the switchgrass, corn, and Miscanthus plots. Resin lysimeters for measuring ammonium and nitrate leaching were installed in the corn and switchgrass plots. Researchers will estimate water use and water flux by the various crops, and inorganic N leaching from beneath the root zone.

PROPAGATION AND ERADICATIONS OF MISCANTHUS X GIGANTEUS

Researchers are investigating Miscanthus planting management. Optimal rhizome size and planting depth are being examined. Long-term survival is promising if plants survive the first winter. Miscanthus plants are also being evaluated for response to herbicide applications.

HARVESTING AND PREPROCESSING TECHNOLOGIES

Harvesting technologies for Miscanthus and switchgrass are being tested. A New Holland 2450 self-propelled haybine and a New Holland 575 small square baler were tested. Switchgrass baled satisfactorily, but Miscanthus bales were consistently loose. A John Deere 337 small baler also baled switchgrass satisfactorily, but not Miscanthus. Miscanthus was successfully baled into large bales with a New Holland BB940. John Deere and CNH have expressed interest in testing equipment.

THERMOCHEMICAL CONVERSION OF BIOMASS TO FUEL

Mechanical parts of the batch reactor system, such as the high pressure vessel, mixer, and valves, have been modified for carrying out high temperature and pressure experiments for the conversion of Miscanthus. The temperature control system is being developed to give an accurate and precise control on temperature.

ECONOMIC ANALYSIS

An economic model is being developed to determine the optimal pattern of land use for Illinois that maximizes returns to landowners while meeting certain goals for energy generation using renewable sources of energy. The model will be used to examine the demand for bioenergy crops generated under various policy scenarios, commodity and fossil fuel prices, and subsidy programs.

SOCIAL ACCEPTABILITY OF ENERGY CROPS

Miscanthus x giganteus (the plant form used in the SRI) is a sterile hybrid. It has been grown in Denmark for over 40 years with no incidence of invasiveness into surrounding fields. Fertile forms of Miscanthus are available at commercial nurseries; therefore researchers are working to educate growers on the importance of planting the sterile form of the plant. A survey of northwest Illinois producers indicated they have concerns about containing Miscanthus, and they characterize it as a possibly invasive exotic species. Focus groups are planned to follow up the survey. Surveys and focus groups are also planned for southern and central Illinois.

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WATER QUALITY WITH A FOCUS ON TOTAL MAXIMUM DAILY LOADS

This three-year initiative focuses on the development of the scientific basis for nutrient standards in the surface waters of Illinois, and assisting in the appropriate development and implementation of total maximum daily loads. Principal investigator: George Czapar, University of Illinois Extension

SPATIAL AND TEMPORAL RELATIONSHIPS BETWEEN BIOTIC INTEGRITY OF ILLINOIS STREAMS, DISSOLVED OXYGEN, AND NUTRIENTS

Statewide water sampling will determine the relationship among nutrients, dissolved oxygen, and chlorophyll-a for streams, and relationships to biotic integrity. Preliminary findings suggest phosphorus (P) concentrations in rivers and streams are in excess of concentrations needed to cause eutrophic conditions; however, there is not a strong relationship between P concentrations and chlorophyll-a due to available light and/or the presence of a suitable substrate for algal growth. Based on the samples processed to date, macroinvertebrate metrics such as diversity and richness are more closely related to habitat quality than to P concentrations.

EFFECTS OF PHOSPHORUS MEDIATED THROUGH ALGAL BIOMASS IN ILLINOIS STREAMS

Sampling sites were established in Little Kickapoo Creek prior to completion of the Bloomington sewage treatment plant. Predischarge nutrient data showed low phosphorus levels. Algal growth is phosphorus limited at unshaded sites. The amount of shade cast by streamside trees is a significant variable explaining periphyton biomass variability. Sampling of periphyton, mussels, stoneroller minnows, and water-column nutrients was initiated at sites downstream to exploit the decreasing gradient in phosphorus. Sampling was completed at 14 sites statewide. Periphyton data show high spatial and temporal variability is not statistically related to phosphorus concentration. Historical data link increasing concentrations of ammonia and total phosphorous with decline of fish and mussels.

SEASONAL DYNAMICS OF NUTRIENTS, ALGAE, AND DISSOLVED OXYGEN IN AGRICULTURALLY DOMINATED HEADWATER STREAMS: THE LINK BETWEEN LAND-USE AND WATER QUALITY

Researchers have documented several patterns important to understanding the relationships among nitrogen and phosphorus, algal biomass, and dissolved oxygen in headwater streams of central Illinois. Large amounts of phosphorus are brought into the system during flood events when phosphorous is either resuspended from stream sediments or washed in from surrounding fields. During much of the year, total phosphorus levels are low relative to nitrate. Even though there are low levels of dissolved reactive phosphorous in the water column, the algae are seldom phosphorus limited.

THE IMPACT OF SEDIMENTS ON THE POTENTIAL BIOAVAILABILITY OF PHOSPHORUS IN ILLINOIS STREAMS

Sediment samples are being analyzed for their ability to adsorb added inorganic phosphorus and to determine phosphorus forms present. Equilibrium phosphorus concentration values of sediments were shown to vary directly with mean overlying water column dissolved reactive phosphorus (DRP) concentrations. DRP concentrations were generally lower in summer 2005 than in summer 2004. Bioavailable phosphorus (BP) concentrations were generally equal to DRP concentrations during summer 2004, but were typically 2–5 times higher than summer 2005 DRP concentrations. BP concentrations are also 2–5 times higher during storm events.
Quality Soybean Meal Being Developed for Swine and Poultry

The largest market for soybeans is the use of soybean meal in animal feeds. Soybean meal is produced through processing and separating soybeans into oil and meal components. The oil is used in food products such as margarine, shortening, salad oils, and cooking oils. After the oil has been extracted out of the soybeans, the residual meal is used as a supplemental protein source for feeding livestock. Soybean meal is an excellent feed for livestock as it is very palatable, highly digestible, and contains a large quantity of amino acids. The majority of the soybean meal is fed to poultry and swine with an increasing amount of specially processed soybeans being fed to dairy cattle. Soybean meal accounts for about two-thirds of the world’s high-protein animal feed, followed by cottonseed and rapeseed meal, which together account for less than 20%.

A team of researchers at the University of Illinois at Urbana-Champaign (UIUC) collaborated on a C-FAR–funded project to determine how the basic soybean meal can be improved to provide for the unique nutritional needs of particular livestock species—specifically swine and poultry. Funded through UIUC’s Sentinel Program, researchers participated in a four-year research initiative to create niche market opportunities for soybean meal in the swine and poultry industries. “This program is an outgrowth of the highly successful Soy-Swine Initiative sponsored by

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Quality Soybean Meal Being Developed for Swine and Poultry

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the Illinois Soybean Program Operating Board in the late 1990s,” said George Fahey, Jr., a professor in the Department of Animal Sciences and a lead researcher of the project. “Data collected from that initiative helped us shape our specific objectives for this research, to include addition of poultry as an animal species worthy of study.”

Joining Fahey on the project were Neal Merchen, Carl Parsons, and Michael Hutjens, also professors in the Department of Animal Sciences; Marilyn Nash of the National Soybean Research Laboratory; and Randy Westgren, a professor in the Department of Agricultural and Consumer Economics.

Processing conditions add variation to the quality of soybean meal. Processing temperature, time, and moisture content greatly influence the nutritional value of the meal. Researchers tested various soybean processing conditions to determine how it would affect the meal. By identifying soybean processing conditions that increase soybean meal amino acid digestibility and/or minimize phytate phosphorus content, more nutrient-efficient diet formulations for pigs and poultry can be produced. With a reduction of phosphorus supplementation in feed formulations, less phosphorus would be excreted by the animal; thus it would have a positive effect on the environment. Researchers also examined how byproducts such as gums, soapstock, and weeds put back into the meal by some processors may interfere with full utilization of the meal by livestock. “An intensive examination of processing methods and byproduct additions has produced data that will be of use to both soybean processors and livestock producers,” said Fahey.

Frazier, Barnes & Associates, a private-sector firm in Memphis, Tennessee, assisted in working with soybean processors from throughout the U.S. and in procuring samples to be tested. The company also provided linkages with soybean producer groups interested in the possible advantages of producing specialized soybean meal products for animal feeding in small-scale processing plants.

“One direction of our research is toward the development of small niche market processing plants that could produce optimal quality soybean meal for swine and poultry,” said Fahey. “As research results indicate potential advantages for swine or poultry feeding when using meal produced using modified processing conditions, producer groups will be better prepared to capture the value of working within a niche market,” said Fahey.

An outreach component of the research was the development of the Illini SAND (Soy in Animal Nutrition Database) website at www.traill.uiuc.edu//SAND/.
The website provides nutritional databases and research results as resources for animal nutritionists, animal producers, and soybean meal processors. It includes information on a wide range of soybean meal topics, such as overviews of how soybeans are processed into soybean meal and links to ration formulation programs. This site also contains compositional and animal testing information related to soybeans and soybean meals from all of the major soybean producing countries throughout the world.

“Pork producers are important customers for soybean producers. Hogs in Illinois consume an estimated 45 million bushels of soybeans with soybean meal-based feed rations,” said Darrell Stitzel, president of the Illinois Pork Producers Association and pork producer from Carroll County. “We applaud this C-FAR project which could help foster a more beneficial business relationship between pork producers and soybean producers. Identifying a process that would reduce the amount of phosphorus content in manure would help pork producers to continue to be good stewards of our natural resources,” said Stitzel.

C-FAR Day at UIUC

Mark your calendars! C-FAR Day will be held this year on Wednesday, November 16 at the University of Illinois at Urbana-Champaign. Enjoy the day learning firsthand about C-FAR–funded research taking place at the university, interacting directly with researchers, and touring research facilities.
Native Plants—A Growing Trend in Landscaping

Interest in the use of native plants in landscaping has increased in recent years. In addition to offering attractive alternatives to more traditionally used species, native plants can attract wildlife, such as butterflies and birds, and are often better adapted to local climates and soil conditions. They also have greater resistance to natural pests, including insects and plant diseases, so fewer pesticides are needed for their care.

While interest is on the rise, the supply of native plants has not kept pace with consumer demand. As part of a research initiative funded by C-FAR, scientists at Eastern Illinois University (EIU) and the University of Illinois at Urbana-Champaign evaluated native nonwoody perennials for their use as potential alternative crops for Illinois nurseries. “The increased demand offers a new niche for native plants to serve as alternative crops in nursery production,” said Janice Coons, EIU professor of botany and principal investigator.

Researchers have identified six plant species native to Illinois that have market potential based on their overall quality coupled with their ease of production. These species include wood mint, purple prairie clover, Bradbury beebalm, spotted beebalm, wild bergamot or horsemint, and royal catchfly. Production techniques developed for each of these species demonstrate they can be propagated easily from seed and healthy plants can be established in greenhouse conditions. Additional native species are also being evaluated.

“The use of natives in commercial, public, and residential landscapes is among the fastest growing areas in the Illinois Green Industry,” said Dave Bender, executive director of the Illinois Nurserymen’s Association. “The demand for these native plants are increasing at a record pace, thus creating the need for research in this area.”

For more information on the use of native plants in landscaping, visit www.eiu.edu/~n_plants.

Websites to Watch

C-FAR
www.ilcfar.org
Your headquarters for C-FAR news and information on funded and completed research.

NAT TOOLS FOR GOOD HEALTH
nat.crgq.com
A source for analyzing diet and food choices.

FARM.DOC
www.farmdoc.uiuc.edu
Provides producers and other agricultural professionals with decision-making information and analysis tools.

MARKETMAKER
www.marketmaker.uiuc.edu
An interactive mapping system that locates businesses and markets of agricultural products in Illinois, which provides an important link between producers and consumers.

ALTERNATIVE CROPS FOR ILLINOIS
www.sws.uiuc.edu/data/altcrops
Helps producers identify and find information on potential alternative crops.

INTERACTIVE AGRONOMY HANDBOOK
www.ag.uiuc.edu/iah
Databases and online resources complement handbook.

ILLINOIS IPM ONLINE
www.ipm.uiuc.edu
An environment for learning about integrated pest management.

ILLINOIS WATERSHED MANAGEMENT CLEARINGHOUSE
www.watershed.uiuc.edu
Helps groups create and implement a plan to address local watershed issues.

ILLINOIS TRAILL
trail.outreach.uiuc.edu
Organizes livestock research, information, and expert services.

C-FAR Connection . Fall 2005
Calendar 2005–2006

November 9  Board of Directors Meeting
November 16 C-FAR Day (University of Illinois at Urbana-Champaign)
January 4  Board of Directors Meeting
January 25 All Working Group Meeting (Bloomington-Normal)
February 28 Annual-Meeting (Northfield Inn, Suites & Conference Center, Springfield)
March 6  Agricultural Production Systems Working Group Meeting
March 7 Expanding Agricultural Markets Working Group Meeting
Rural Economic Development Working Group Meeting
March 8 Human Nutrition and Food Safety Working Group Meeting
Natural Resources Working Group Meeting

Please call the C-FAR office or check the calendar on the
C-FAR website at www.ilcfar.org for further details.